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JUL 19 2004  
PTO

## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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**Complete if Known**

Application Number	10/755,946
Filing Date	January 13, 2004
First Named Inventor	Francisco J. Ayala
Group Art Unit	608 212
Examiner Name	NOT YET KNOWN
Attorney Docket Number	128180-1000

## **U.S. PATENT DOCUMENTS**

## **FOREIGN PATENT DOCUMENTS**

**Examiner  
Signature**

(George D. Davi)

**Date  
Considered**

2/17/05

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Substitute for form 1449A/PTO		<i>JUL 19 2004</i> 	Complete if Known	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>			Application Number	10/755,946
(use as many sheets as necessary)		Filing Date	January 13, 2004	
		First Named Inventor	Francisco J. Ayala	
		Group Art Unit	800-212-1	
		Examiner Name	NOT YET KNOWN	
		Attorney Docket Number	128180-1000	
Sheet	2	of	6	

## **U.S. PATENT DOCUMENTS**

## FOREIGN PATENT DOCUMENTS

Examiner Signature	George Davis	Date Considered	2/17/05
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Application Number	10775,946
Filing Date	January 13, 2004
First Named Inventor	Francisco J. Ayala
Group Art Unit	888 2121
Examiner Name	NOT YET KNOWN
Attorney Docket Number	128180-1000

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>3</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
G.V.		5,974,404	B1	Moed et al.	10-26-1999	
		6,038,338	B1	Nguyen	03-14-2000	
		6,151,592	B1	Inazumi	11-21-2000	
		6,205,556 B1	B1	Watanabe et al.	03-20-2001	
		6,269,351 B1	B1	Black	07-31-2001	
		6,349,293 B1	B1	Yamaguchi	02-19-2002	
		6,366,897 B1	B1	Means et al.	04-02-2002	
		6,415,272 B1	B1	Ulyanov	07-02-2002	
		6,449,603 B1	B1	Hunter	09-10-2002	
		6,516,309 B1	B1	Eberhart et al.	02-04-2003	
		6,553,357 B2	B2	Mathias et al.	04-22-2003	
		6,601,053 B1	B1	Schaffer et al.	07-29-2003	
		Pub. No. 0014378	A1	Goodnight et al.	01-16-2003	
		Pub. No. 0018598	A1	Cawse et al.	01-23-2003	
		Pub. No. 0059154	A1	Rodvold	05-16-2002	
C.Y.O.		Pub. No. 0004904	A1	Kirshenbaum	01-02-2003	
			B1			

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Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>4</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>2</sup> (if known)				

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Date Considered

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**Complete If Known**

Application Number	10/755,848
Filing Date	January 13, 2004
First Named Inventor	Francisco J. Ayala
Group Art Unit	688-212-1
Examiner Name	NOT YET KNOWN

Attorney Docket Number 128180-1000

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

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G.J		HALLINAN, J., et al., 1998; <u>Cooperative Evolution Of A Neural Classifier And Feature Subset</u> ; Proc. 2nd Asia-Pacific Conference on Simulated Evolution and Learning	
G.J		HARTER, D. et al., 2001; <u>Models of Ontogenetic Development for Autonomous Adaptive Systems</u> ; Proceedings of the 23rd Annual Conference of the Cognitive Science Society, pp. 405-410	
G.J		HOCHMAN, R., et al., 1996; <u>Using The Genetic Algorithm To Build Optimal Neural Networks For Fault-Prone Module Detection</u> ; In Proc. the Seventh Int. Symposium on Software Reliability Engineering, pp. 152-162; White Plains, N.Y.	
G.J		KEANE, M.A., et al., 2002; <u>Automatic Synthesis Using Genetic Programming of an Improved General-Purpose Controller for Industrially Representative Plants</u> ; <i>Evolvable Hardware</i> , 2002; pp. 113-122.	
G.J		MICHEL, O., 1995; <u>An Artificial Life Approach for the Synthesis of Autonomous Agents</u> ; In J. Alliot, E. Lutton, E. Ronald, M. Schoenauer, and D. Snyers (Eds.), Proceedings of the European Conference on Artificial Evolution. Springer-Verlag.	
G.J		KAELBLING, L.P., et al. <u>Reinforcement Learning: A Survey</u> , (1996), <i>Journal of Artificial Intelligence Research</i> 4: 237-285.	
G.J		TOURETZKY, D.S., et al., (1997) <u>Operant Conditioning in Skinnerbots</u> . " <i>Adaptive Behavior</i> 5:219-247.	
G.J		BYOUNT-TAK ZHANG, et al., <u>Evolutionary Induction of Sparse Neural Trees</u> , <i>Evolutionary Computation</i> , 1997, Vol. 5, No. 2, pp. 213-236	

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Date Considered

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Application Number	10/755,946
Filing Date	January 13, 2004
First Named Inventor	Francisco J. Ayala
Group Art Unit	608 2121
Examiner Name	NOT YET KNOWN
Attorney Docket Number	128180-1000

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G-1		BYOUNG-TAK ZHANG, et al., <u>Evolutionary Neural Trees for Modeling and Predicting Complex Systems</u> ; <i>Engng. Applic. Artif. Intell.</i> Vol 10, No. 5 pp. 473-483, 1997	
G-0		KOZA, JOHN R., 1989, <u>Hierarchical Genetic Algorithms Operating on Populations of Computer Programs</u> , Reprinted: Computer Science Department, Stanford University, Stanford, CA; pp. 578-584	
G-0		F. PASEMANN; <u>Pole-Balancing with Different Evolved Neurocontrollers</u> ; Max-Planck-Institute for Mathematics in the Sciences, D-04103 Leipzig, Germany; pp. 1-7	
G-0		J.R.KOZA, et al.; <u>Evolving Inventions</u> ; <i>Scientific American</i> ; 2003; pp. 52-59	
G-0		H.LIPSON, et al.; <u>Automatic Design and Manufacture of Robotic Lifeforms</u> ; <i>Nature</i> , Vol. 406, 31 August 2000; pp. 974-978	
G-0		C.O.Willke, et al.; <u>Evolution of Digital Organisms at High Mutation Rates Leads to Survival of the flattest</u> ; <i>Nature</i> , Vol. 412, 19 July 2001; pp. 331-333	
G-0		R.E.Lenski, et al.; <u>The Evolutionary Origin of Complex Features</u> ; <i>Nature</i> , Vol. 423, 8 May 2003; pp. 139-144	
G-0		Y. SAHIGEMATSU, et al.; <u>A dynamic Neural Cell Model Driven by Pulse Train</u> ; Electrotechnical Laboratory; Umezono Tsukuba Ibaraki JAPAN; PP. 130-133	
G-0		P.D. WASSERMAN, et al.; <u>Neural Networks, What are they and Why is Everybody so Interested in Them Now?</u> ; Part 2; Institute of Electrical and Electronics Engineering <i>Expert</i> , Spring 1988; pp. 10-15	
G-0		R.S.SCALERO, et al.; <u>A Fast New Algorighm for Training Feedforward Neural Networks</u> ; Institute of Electrical and Electronics Engineering; <i>Transactions on Signal Processing</i> . Vol. 40, No. 1, January 1992; pp. 202-210	

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Complete If Known	
Application Number	10/755,948
Filing Date	January 13, 2004
First Named Inventor	Francisco J. Ayala
Group Art Unit	600-2121
Examiner Name	NOT YET KNOWN
Attorney Docket Number	128180-1000

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6-9		K.E. KINNEAR, JR.; <i>Evolutionary Computers 1, Basic Algorithms and Operators</i> , Beck, T. et al. (eds) 2000; Institute of Physics Publishing, Bristol; pp. 102-113	
6-9		P.J. ANGELINE; <i>Evolutionary Computers 1, Basic Algorithms and Operators</i> , Beck, T. et al. (eds) 2000; Institute of Physics Publishing, Bristol; pp. 102-113	
6-9		D.TVETER; <i>The Pattern Recognition Basis of Artificial Intelligence</i>	
6-9		S.L.BLYUMIN, et al.; <i>Reduction of Adjusting Weights Space Dimension in Feedforward Artificial Neural Networks Training</i> ; IEEE International Conference on Artificial Intelligence Systems; September 5-10, 2002; p. 242	
6-9		S.S.HAN, et al.; Optimization of Neural Network Structure and Learning Parameters Using Genetic Algorithms; 8 <sup>th</sup> International Conference on Tools with Artificial Intelligence; November 16-19, 1996; Toulouse, France; p. 200	
6-9		T.ZHUANG, et al.; <i>A Neuron-Weighted Learning Algorithm and its Hardware Implementation in Associative Memories</i> ; IEEE Transactions on Computers, 1993; pp. 636-640	
6-9		N.P. ARCHER, et al.; <i>Learning Bias in Neural Networks and an Approach to Controlling its Effect in Monotonic Classification</i> ; IEEE Transactions on Pattern Analysis and Machine Intelligence, 1993; pp. 962-966	
6-9		A.K. BANSAL; <i>Establishing a Framework for Comparative Analysis of Genome Sequences</i> ; IEEE First International Symposium on Intelligence in Neural and Biological Systems May 29-31 1995; p. 84	
6-9		M.HILARIO, et al.; <i>A Metalevel Architecture for Knowledge-Based neural Network Design</i> ; IEEE 9 <sup>th</sup> International Conference on Tools with Artificial Intelligence; November 2-8, 1997	

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